The Mining Journal

LONDON, OCTOBER 3, 1958

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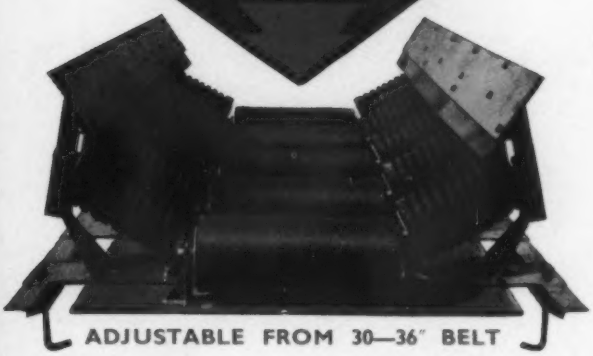

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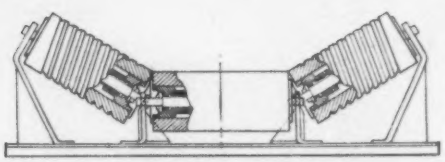

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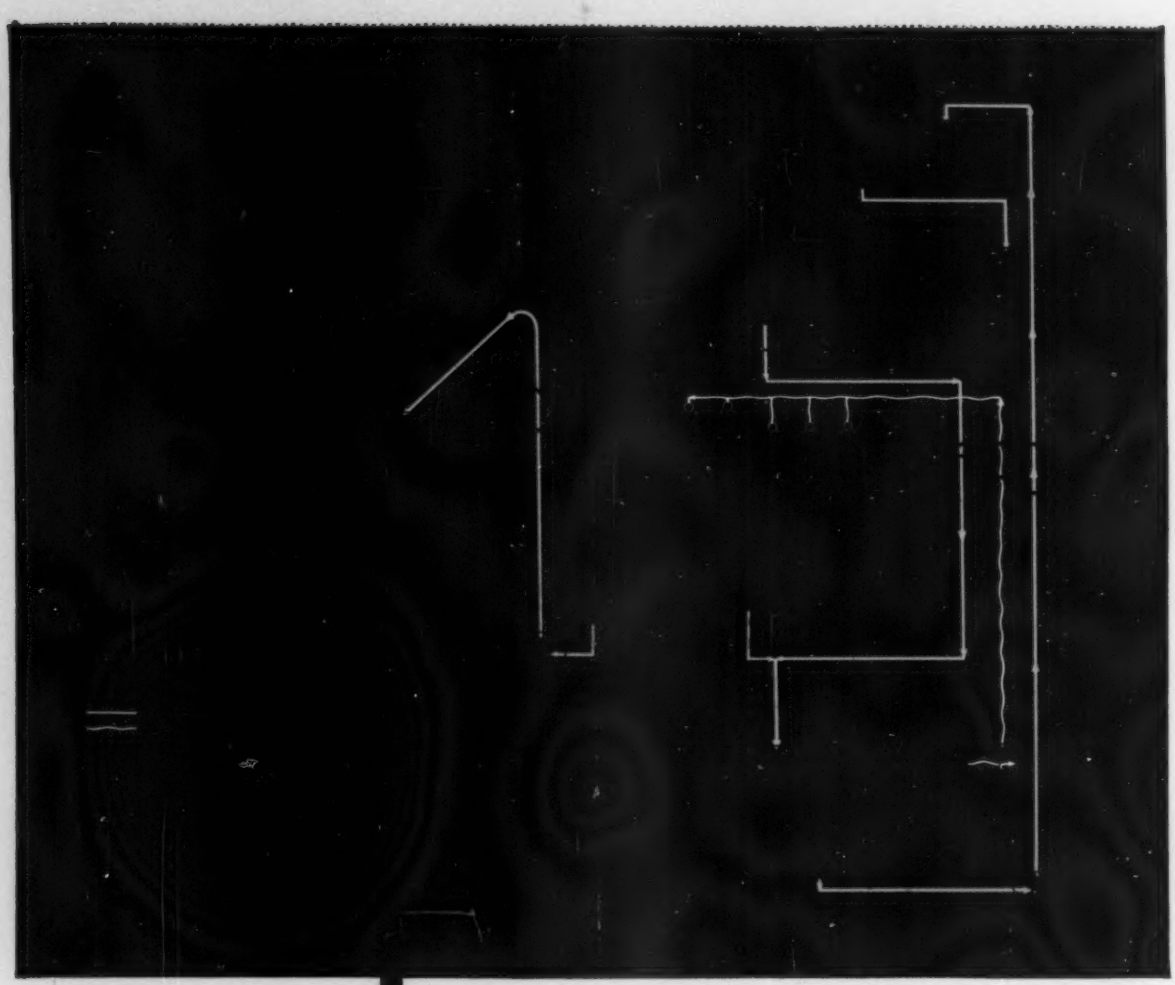

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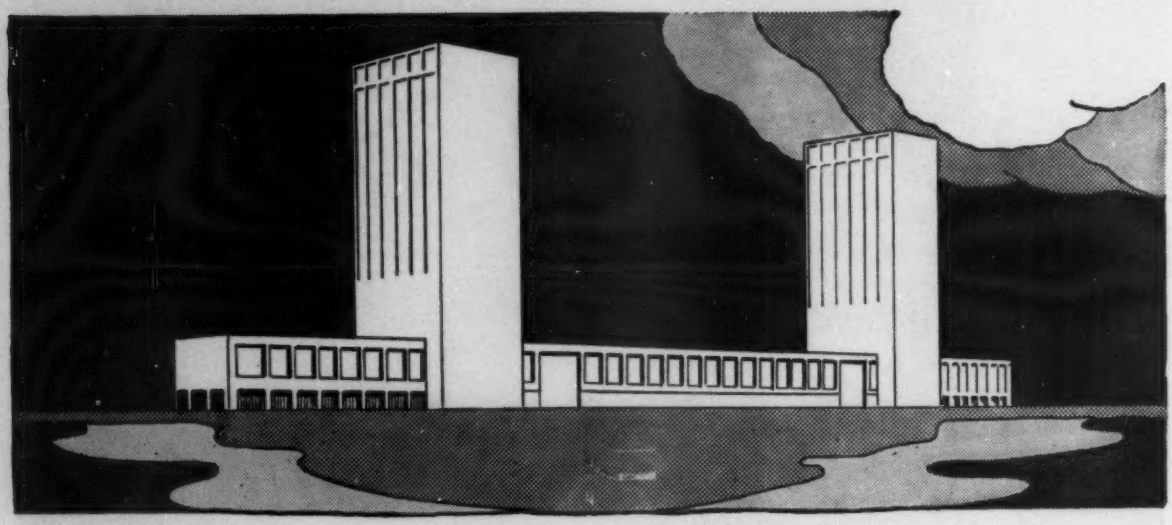

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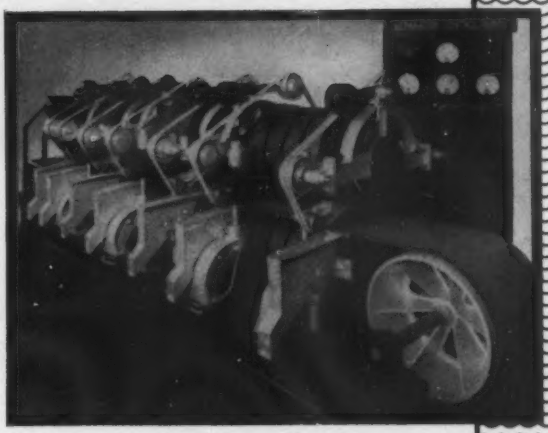

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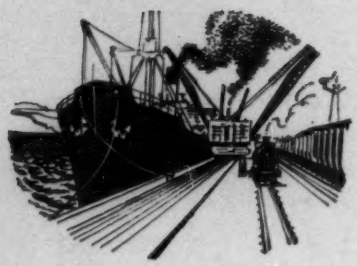

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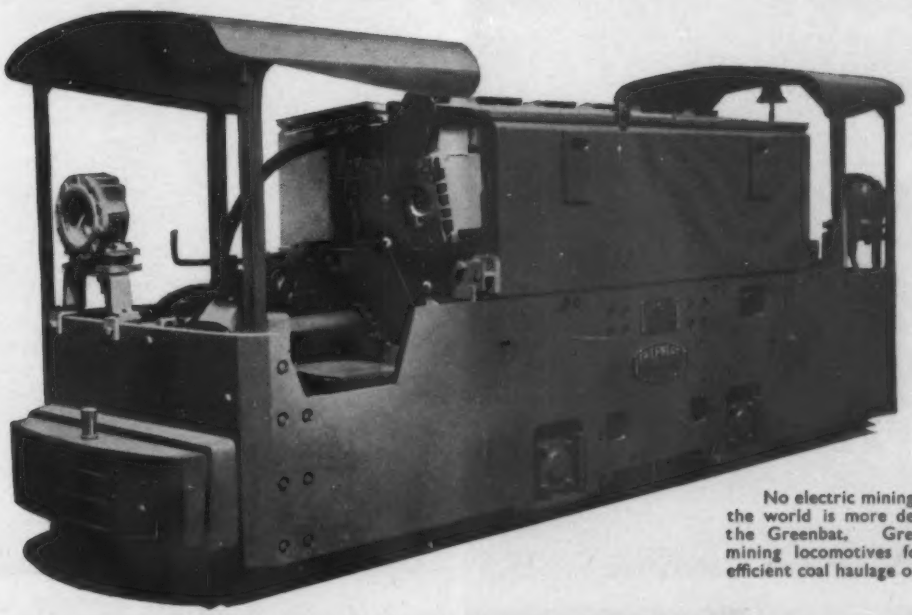

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The Mining Journal

London, October 3, 1958

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Constructive Thinking at Montreal

As to the success of the Montreal Conference there can be no question. Has there ever been any previous occasion on which countries with such varying interests and in such diverse stages of development have shown a more remarkable capacity for finding common cause and reaching unanimous decisions? Particularly encouraging has been the breadth of vision shown by the delegations, as manifested by their ability to view economic problems against a world background rather than in a purely Commonwealth context. The benefits in terms of increased trade and prosperity will, of course, be dependent on the effectiveness with which all this vigorous and constructive thinking can be translated into collective action, but the fact that a set of guiding rules for Commonwealth expansion has been agreed upon is in itself sufficient justification for the time and money expended on the conference.

Prominent among the expansionist measures announced at Montreal was Britain's plan for a substantial increase in economic aid to Commonwealth and Colonial territories. The United Kingdom is already investing £200,000,000 a year in the Commonwealth and the new measures are certain to increase this amount, though no figure was mentioned by the Chancellor. Canada is also stepping up her aid to other Commonwealth countries in a programme running into hundreds of millions of dollars, which envisages an increase of approximately 50 per cent in contributions under the Colombo Plan, a doubling of her World Bank subscription, and an increase of her I.M.F. quota by 50 per cent.

Other outstanding features of the conference were the acceptance of general principles limiting the degree of protection on farm and mineral products; the declaration by all members recognizing the importance of not placing obstacles in the way of manufactured goods exported by under-developed countries; and the steps taken by Britain and Canada respectively towards the removal of discrimination against dollar goods and the binding of tariffs on a wide range of British products entering the Dominion. Balance of payments difficulties still compel most Commonwealth countries to maintain import restrictions, but it was agreed to try to remove all discrimination between themselves.

One important effect of the conference was to underline the need for continuing and close co-operation, which must include other free world countries. Opportunities for approaching the problems of economic expansion on an even wider basis will be provided at New Delhi by the annual meetings of the World Bank and the Intermonetary Fund at New Delhi, where the U.S. proposals for increasing the resources of both institutions are assured of Commonwealth support.

For many of the countries represented at Montreal, one of the most important issues was commodity stabilization, which concerns both the United Kingdom as the largest purchaser of raw materials in the Commonwealth, and the Dominions and Colonial territories as primary producers. In view of these apparently divergent interests a remarkable measure of agreement was achieved. Particularly noteworthy was the success of Australia's Trade Minister,

Mr. McEwen, in securing agreement for an attempt to launch an immediate international study on lead and zinc, which, it is hoped, will prove more constructive than the recent London talks. In this he was greatly assisted by the clumsy timing of Washington's announcement of import quotas, which severely strained the cordial and co-operative attitude consistently adopted by the conference towards the United States. What the U.S. import quotas mean to Australian lead and zinc producers can be seen from the statement by the Consolidated Zinc Corporation, to which more detailed reference is made on page 367. President Eisenhower has since told Mr. Menzies, the Australian Prime Minister, that his government is willing to discuss alternatives to the quotas.

The U.K. has also agreed to arrange future Commonwealth talks on particular commodity problems troubling other members, in cases where no other specific international machinery exists. The primary producing countries on their part have accepted that such machinery must be used to the full, that long-term trends in supply and demand must be recognized, and that the co-operation of all producing and consuming countries is needed for effective action.

In its final communiqué, the conference expressed "deep concern" that the International Tin Agreement should succeed and reiterated the determination of Commonwealth countries to consult together as needful about appropriate measures to strengthen it. Russian action in upsetting the world tin market and certain other commodity markets was deplored. A warning was given that if such disturbing trade tactics are extended, "action would be required to prevent distortion of normal world trade".

The stimulus to economic progress resulting from implementation of the expansionist measures announced or agreed upon at Montreal may be expected to give a corresponding impetus to the demand for metals and minerals. It is the more to be regretted that, when formulating the otherwise comprehensive agenda, no advantage was taken of the opportunity for laying the foundations of a Commonwealth minerals policy to co-ordinate and facilitate the exploitation and development of our collective mineral resources. Without lingering over a point which has been emphasized repeatedly in these columns, it is pertinent to reiterate that known world supplies of some of our most essential minerals are scarcely sufficient to outlast the present century, if the estimated growth of consumption is attained (known tin supplies will be exhausted in 25 years). Surely we have sufficient confidence and interest in the permanency of the Commonwealth to look further than the present phase of over-supply, with the consequences of which the Montreal Conference has been so rightly concerned.

HAS THE BUFFER STOCK MANAGER TWO PERSONALITIES?

Those who sought to write into the articles of the present International Tin Agreement a process of international tin control, had before them as a basis the experience gained in the unsuccessful attempt at tin stabilization in the thirties. Among a number of shortcomings in the pre-war scheme which the new articles were designed to obviate, by far the most notable related to the conditions under which the buffer stock manager was to be empowered to operate.

Under the pre-war scheme the market was left quite in the dark as to the terms of reference within which the buffer stock manager was operating, and indeed there was no reason to suppose that his instructions were not frequently subject to alteration. In consequence of this secrecy his operations tended to add one more major uncertainty to the market situation. All this the articles of the post-war tin agreement sought to put right. Thus, the price limits within which the buffer stock manager was authorized to buy and sell, either compulsorily or at his discretion, were clearly specified. The amount of money at his disposal was made known and consequently his maximum buying capacity could be calculated. It is true that for obvious technical market reasons, the actual size of the buffer stock could only be disclosed after a time lag of three months. Moreover, the buffer stock manager was specifically precluded from borrowing on his stocks.

When the buffer stock manager's cash resources became exhausted it was announced that further *ad hoc* contributions were being made by some producer countries towards a special fund to enable him to continue his operations. No indication was given at the time of the extent of these funds or of the conditions under which they were being lent, but it was generally and naturally assumed that they were an extension to the funds available to the buffer stock manager under the Tin Agreement.

It now appears from a statement made last week by the chairman of the I.T.C. that the position is quite otherwise. The special fund is regarded by the Council as in no sense constituting part of the funds made available to the buffer stock manager under the Tin Agreement. It is a separate special fund which, though operated by the buffer stock manager, is not considered as in any way subject to the conditions governing the buffer stock manager's dealings arising out of the initial £25,000,000 contributed by producer countries under the agreement. We appear thus to be confronted with a situation where the buffer stock manager has developed a split personality, and whatever the wording of the Tin Agreement, it is difficult to imagine that those who drafted it realized or intended a situation where the buffer stock manager should be an active market operator outside of his role as buffer stock manager.

Nevertheless, this seems to be the case and it moreover appears that in his role as special fund manager he is subject to none of the restrictions which were designed to overcome the objections to the pre-war scheme. Thus he can operate as a buyer or seller at any price and there seems to be nothing to preclude him from borrowing on his stocks of tin acquired out of this fund. Moreover, it is apparently the Council's intention at no time to disclose (even retrospectively) the size of the tin stocks held by this special fund or of the amount of money paid into the special fund. Indeed, there seems to be no reason why the tin acquired by the special fund should not be disposed of before the buffer stock manager begins selling from the buffer stock which at present is, of course, fully bought to the extent of its available funds at about 23,000 tons.

While there can thus be no certainty as to just how much tin the buffer stock manager holds outside of the buffer stock, market opinion is inclined to credit him with 4,000 or, perhaps at the most, 5,000 tons. This is not an inconsiderable tonnage to have hanging around the London market with no certainty as to when the buffer stock manager in his new alternative role may suddenly appear on the market as a seller—or indeed for that matter, as a buyer—since it is by no means certain that special funds are exhausted.

It is difficult to believe that the market will let this interpretation of its duties by the International Tin Council pass without protest. The tin market is jittery enough already and matters will certainly not be improved by the introduction of a second buffer stock which appears to have all the disadvantages which attached to the pre-war restriction scheme The Council may well be inclined to reply that freedom of action is necessary if it is effectively

to counter Russian dumping tactics. This may be so, but in that case it must also be taken as an admission that international commodity control of a kind envisaged in the Tin Agreement cannot operate unless all major producers and consumers are party to the agreement. If this is so, and if Russia is to stay permanently out of the agreement, member countries will have seriously to consider the merits of this new cloak and dagger style of buffer stock operations. After all, the operations of the buffer stock manager are not essential to, at any rate, a rudimentary tin restriction scheme. True the operation of the buffer stock is supposed to stabilize prices in the short term, but basically it is the imposition of quotas at an appropriate level which in the long term is the essence of tin restriction.

Certainly, if any study group for lead and zinc comes to be set up, the experience in recent months of the Tin Council should give them plenty to ponder over.

BRIGHTER PROSPECTS FOR METALS?

At a time when lead and zinc producers are bedevilled by the U.S. import quotas, and when the tin market is in the process of finding its own level, the encouraging tone of two recent statements in New York is welcome.

The 1959 outlook for non-ferrous metals is much more optimistic than were the prospects last year at this time for 1958, according to Mr. Zimmerman, Editor-in-Chief, *Daily Metal Reporter*, speaking at the National Industrial Conference Board's 6th Annual Marketing Conference.

Throughout 1957 and during the greater part of this year, purchasing agents were perturbed because they were afraid of being caught with high-priced metal inventories. These fears had largely disappeared because excessive inventories had been pretty well liquidated. For months the metal consuming industries were using up more copper, for example, than they were buying, which threw the burden of carrying stocks on to the shoulders of the copper producers. Some independent fabricators had reduced their copper inventory to so low a level that they were having to insist on prompt shipment when placing an order. The inflationary trend that was causing so much concern at the present time was making some metal consumers sit up and take notice as to the status of their inventory position.

The important thing was that remedial measures had been taken in copper, lead, zinc, and aluminium, and even in nickel which was so scarce last year, so that statistically these metals were now in a better position than they were a few months ago, and prospects were, that with consumption on the mend, the statistical improvement would continue into 1959.

If consumption of copper, lead and zinc continued to grow at the rate achieved during the last five years, the present problem of surpluses would disappear, Mr. Simon D. Strauss, Vice-President of the American Smelting and Refining Co., told the American Mining Congress in San Francisco.

Such an expansion, he said, would bring total consumption in the years 1958-1962 to 20,000,000 tons of copper, 11,150,000 tons of lead and 14,200,000 tons of zinc. This would mean an annual average of 4,000,000 tons of copper, 2,240,000 tons of lead and 2,850,000 tons of zinc.

The world outside the Russian sphere was annually using 3,500,000 tons of mined copper, 2,500,000 tons of mined zinc and almost 2,000,000 tons of mined lead.

Mr. Strauss said the realization of the projection for copper would mean that the expansion of productivity capacity for that metal which was now under way would be readily absorbed.

EUROPEAN COAL PROBLEMS

Government representatives of the European Coal and Steel Community met last week in Luxembourg in an endeavour to find a solution to problems besetting the coal industries of the six member states. Producers in Europe have recently suggested that the real necessity for coal imports was greatly exaggerated by High Authority reports. These resulted in panic buying and the placing of long-term contracts for U.S coal, landings of which are aggravating an already embarrassing situation. Stocks of coal at the pit head are far too high for comfort, particularly in Belgium. The Belgian colliery companies are rather perturbed about the substantial contracts for German coal recently placed by Belgian steel firms and believe that these contracts were only made possible by covering German internal requirements by U.S. imports.

The discussions in Luxembourg are likely to centre on more rigid co-ordination of the import policies of the member countries Recently, Germany decided to restrict imports of U.S. coal and this decision resulted in contracts for 41,000,000 tons of U.S. coal being affected. Diplomatic representations to West Germany are to be made by the U.S. following this Bonn decision to cut down on coal imports, and the Americans are studying whether it is in fact consistent with the General Agreement on Tariffs and Trade.

MINING OUTPUT IN BULGARIA

Statistics published recently in the Bulgarian newspapers show that industrial output during the second quarter and first half of the present year was greater than projected, having been 104 and 105 per cent, respectively, of the projected aggregate figure. This success has extended, though in reduced measure, over the field of heavy industry, where the corresponding figures were 104 and 103 per cent, but where, it is admitted, 19 enterprises fell short of their planned output to an aggregate value of 28,000,000 leva (about £1,400,000). As compared, however, with the same periods last year, the increased output has been substantial, representing an increase of 17 per cent during the second quarter and 18 per cent during the first half-year, and this applies especially to the fields of mining and metallurgy, as shown by the following figures:

	2nd Qtr. of 1958 as a percentage of 2nd Qtr. of 1957	1st Half of 1958 as a percentage of 1st Half of 1957
Iron Mining and Iron and Steel Metallurgy	126	133
Non-ferrous Metal Mining and Metallurgy	117	118

The published break-down of the foregoing aggregates is as follows:

	Production		% of 1957	
	2nd Qtr.	1st Half-year	2nd Qtr.	1st Half-year
	(000 tonnes)			
Coal	3,094	6,235	105	106
Iron ore	76	140	105	106
Copper Ore ...	167	320	119	119
Lead-Zinc ore ...	567	1,096	121	121
	(tonnes)			
Lead Concentrate ...	26,710	48,800	120	115
Zinc Concentrate ...	25,420	47,430	111	112
Steel	53,223	103,125	136	141
Rolled Steel products	33,998	68,191	125	121
Lead	5,934	11,917	127	129
Zinc	1,951	4,061	104	110

Water Control at a Utah Mine

THE outstanding problem at the Chief Mine in the Tintic district, Juab County, Utah, operated by the Chief Consolidated Mining Co., is water control. Pumping, one of the major cost items, is conducted in stages and 6,500 to 7,000 gals. of water per minute is discharged into a permeable channel at the 1800 level. These problems are discussed in the U.S. Bureau of Mines, Information Circular 7828.

The Tintic district, one of the important gold-silver-lead-zinc copper producing areas of Utah, has yielded ores valued at more than $450,000,000. The orebodies occur by long narrow shoots along fault fissures. Oxide ores predominate above the 1800 level, which is also the natural water level. The Chief Mine is developed by vertical shafts and winzes from which drifts are driven to the orebodies. The mine has been worked to the 2,800 level and the 18-411 winze extends to the 3800 level.

Natural Cavern

During the period 1909-1918, ores were mined between the 600 and 1800 levels. By 1916, plans were being made to mine ores below the water tables. Encouraging mineralization encountered in development below the 1800 level resulted in installation of a pumping system. By 1919, the water had been lowered to the 1900 level by pumping to the surface in five stages. Ores were followed downward in various places below the water table by the use of air-driven sinker pumps, and by pumping into the central disposal system, which discharged at the surface.

By 1921, the 2000 level was reached, and the flow from the pump increased to 1,000 g.p.m. About this time, an exploratory drift on the 1600 level encountered a natural cavern, approximately 2,000 ft. from the shaft. As an experiment it was decided to attempt to fill this cavern by pumping water into the opening.

Strangely, the cavern did not fill; thus it was decided to pump the entire flow into the cavern. Sodium fluorescein salt was added to determine if the water was being returned to the mine and recirculated. No trace of return water was found either by this colour test or by subsequent tests using other indicators. It appeared that the water was being pumped from a perched water table to another lower than the zone of operation.

In 1927 high mining costs due to pumping, in conjunction with the low metal prices of that period, forced cessation of operations on the lower levels. The pumps were pulled, and all equipment except pipe and track was removed. The water rose from the 2500 to the 2200 level in 24 hours; from the 2200 to the 2000 level in three weeks; and to the 1950 level in two years. Twelve years later the water had risen to within 40 ft. of its old level and was still slowly rising. Between 1928 and 1942 mining was confined to areas above the water table.

As a result of the 1942 government announcement that premium prices would be paid for lead and zinc mined in excess of the producer's 1941 tonnage quota, it was decided to pump the water from the lower levels of the Chief mine.

The adjoining Gemini mine had been confronted with a pumping problem during a long period of operation. The two mines are connected by a drift on the Chief 1600 level, which corresponds to the Gemini 1400 level. An exploratory drift in the Gemini 1600 level, corresponding closely to the Chief 1800 level, had encountered a similar open cavern 1,100 ft. north of the Chief cavern. Following the example of the Chief, the Gemini Mining Co. was also successful in dewatering through this outlet.

De-Watering Operations

Inasmuch as the Gemini cavern is 1,100 ft. farther from the Chief operations, it was decided to use this cavern, as it appeared that less water would return to the workings. A system capable of discharging 2,400 g.p.m. into the Gemini cavern at the elevation of the Chief 1600 level was installed, and de-watering operations were begun during August, 1942.

The original plan was to de-water the 18-411 winze to the 2200 level (its depth at that time) and then to de-water through "C" sump winze to the 2500 level. A 350-h.p., 3,000-g.p.m., submersible-type pump was lowered under water to the 2150 level. At this point an obstruction was encountered in the winze, and the pump could not be lowered. However, the water was lowered to this level, but to permit deeper penetration, it became necessary to de-water through another opening. The "C" sump winze, previously sunk to the 2500 level, was found to be caved and unsafe. Two 350-h.p., submersible-type pumps were installed in the 1940 winze, and the water was lowered to the 2300 level. A drift was driven to the location of the 18-411 winze on the 2300 level and a connection made to the winze to the 2200 level. A connection was then made between the 18-411 winze and the "C" sump winze and de-watering was accomplished to the 2500 level, being continued through the 18-411 winze as the mine was deepened.

In May, 1944, a drift was completed to connect the Gemini cavern at the Chief 1800 level. This relieved the pumps of the additional 215-ft. head to the 1600 level, and the volume of flow from the pumps increased to approximately 4,000 g.p.m. In 1947 the 18-411 winze was sunk to the 2700 level, and stations were established on the 2400, 2500, 2600, and 2700 levels. The pumping system was enlarged to include one set of pumps capable of delivering 3,000 g.p.m. at a 950-ft. head and a standby set of equal capacity. Both systems discharged into the Gemini cavern at the 1800 level.

Excessive Flow of Water

This procedure proved adequate for mining ores at a short distance above the 2700 level. However, at a point just above the 2700 level the ore shoots are cut and displaced by the Leadville fault-dike. This structure is an argillized laterite dike 1 to 3 ft. thick, which has the peculiar effect of damming the waters of the footwall block from the de-watered, mined-out areas of the hanging-wall block. Attempts were made to cross the dike and mine ores in the north block; but, in each instance, the excessive flow of water forced discontinuance. It became evident that the existing pumping system was only adequate to drain the south block to the 2700 level. The water in the north block remained at the 2350 level.

In 1950, encouraged by favourable geological conditions encountered by diamond drilling, the company proposed (1) sinking the 18-411 winze to the 3100-ft. level, driving the 2700- and 3100-level drifts to intersect the downward projection of ore shoots in the north block and (2) installing electrical and pumping facilities adequate to de-water to the 3100 level. Project work was begun during December 1950.

Early in 1951 exploratory drifts on the 2700 level were driven through the fault and into ore in the north block. The flow of water soon increased to 7,200 g.p.m., and the newly-installed pumping system proved adequate to handle the increased flow.

During mining operations above the 2700 level, the main gathering sump was located on this level. After deeper sinking and development of the 2800 level, the water table was lowered to it. Later much of the water was being drained by development on the 2900 level.

Safety of Crew

A sump was constructed on the 2900 level and the water boosted from this sump to the 2700 level sump. The 2900-level pump sump is 12 by 10 by 46 ft. in size. An auxiliary sump (18 by 15 by 50 ft.) was also constructed to act as standby storage in case of emergency. The 18-411 winze has been extended to the 3079 level. The lowest 79 ft. will be used as a pump sump. Development on the 3000 level probably will drain the 2900 level.

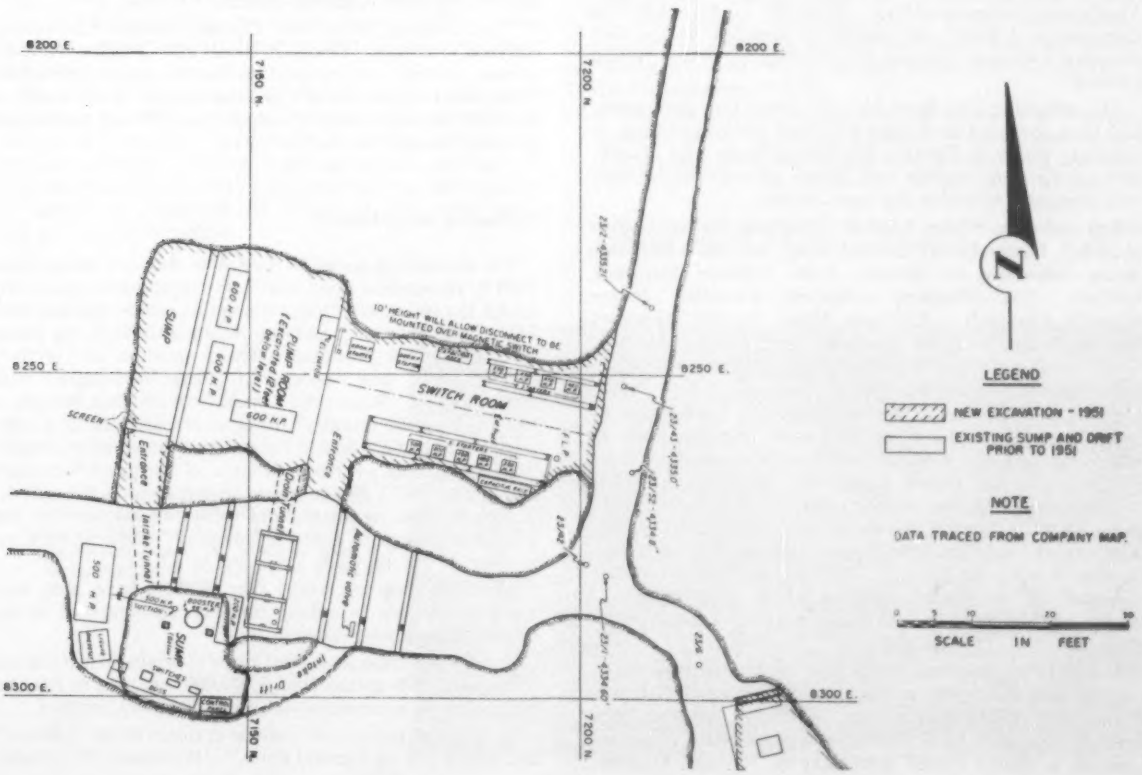
A problem of major importance is control of the large flow of water while sinking and development are being conducted below the water table. In case of mechanical or electrical failure, the safety of the crew working below the water table presents a serious problem. Soon after the sinking operations were begun in 1952, a mechanical failure occurred. The company had constructed a pump sump on the 2700 level, into which the flow was diverted. This sump is 10 by 10 by 50 ft. in size and was considered large enough to hold the flow approximately five minutes. A scheme was devised to funnel the overflow from the sump into an 8in. column, which was being carried down one end of the shaft outside of timber.

While sinking operations were in progress, a pump-head broke, disrupting pumping operations and allowing the column of water above the pumps to drain back into the sump. The drain from the column, plus the inflow, filled the sump almost immediately, and water started pouring down the shaft. The 8-in. drain column down the shaft proved inadequate. The crew was forced to climb out through the water and was fortunate to be able to complete the climb without loss of life. As a result of this failure, it became evident that a larger sump would be necessary, and the company constructed an additional 16 by 45 by 11 ft. sump to hold the flow long enough to permit a crew to escape.

Mucking is accomplished with a clamshell hydromucker, and electricity for power supply is purchased locally.

The main pumping station for the new system was excavated on the 2300 level and is designed to be adequate for the maximum flow expected. The old pumping system also utilized a sump and pump station on the 2300 level. Although the new system is integrated with the old one near the point of outlet, it operates entirely independently. Pumps at the 2300 level boost the water to the 1800 level, where it is discharged into the Gemini cavern.

Plan of pumping layout, 2300 level



The Canadian Asbestos Industry

ASBESTOS, in common with most other industrial materials, is, at present, being faced with complex marketing problems for the first time since the end of the Second World War, although as early as 1954 there was evidence to suggest that the supply of spinning fibre was beginning to outstrip the growth in demand. While the industry is in a much better and sounder financial and operating condition today than at any time in the past, having enjoyed a growth in volume over the past decade at an average rate of 9 per cent per annum, new difficulties and uncertainties are beginning to emerge.

All asbestos produced in Canada is of the chrysotile variety, the principal commercial form.

Integregation and Control

The present day structure of the asbestos industry in Canada has two main characteristics—vertical integration and foreign control. Several of the more important mining companies are under the same ownership as companies engaged in the manufacture of asbestos products. Canadian companies control approximately 30 per cent of the asbestos mining industry ; U.S. companies 65 per cent and the United Kingdom about 5 per cent.

There are at present eight producing companies operating in the asbestos mining industry. Of these only two—Asbestos Corporation Limited, formed by merger in 1925 and Johnson's Company Limited—are not captive mines and both are under Canadian ownership. Cassiar Asbestos Corporation Limited is also, in large part, under Canadian ownership, but as a result of stock purchases, is closely associated with Turner-Newall Limited (U.K.) and Raybestos-Manhattan Company (U.S.). Sales for Cassiar Asbestos Corporation Limited are almost all handled by the Bell Asbestos Company Limited, a subsidiary of Turner-Newall Limited.

The remaining five firms are all vertical type companies, and fibre produced from their Canadian mines is shipped to company plants in Canada, the United States and abroad. Any surplus fibre together with grades not required for their own operation, is sold in the open market.

Bell Asbestos Mines Limited is owned by an English company, Turner-Newall Limited, which also has a manufacturing subsidiary in Canada, Atlas Asbestos Company Limited. The remaining companies—Canadian Johns-Manville Company ; Flintkote Mines Limited, Quebec ; Nicolet Asbestos Mines Limited ; and Quebec Asbestos Corporation Limited—are all wholly-owned subsidiaries of U.S. manufacturing companies.

The Canadian Johns-Manville Company, a subsidiary of Johns-Manville Corporation (U.S.), is engaged both in asbestos mining and in the manufacture of asbestos products in Canada. The parent companies of Flintkote Mines Limited and the Quebec Asbestos Corporation (the Flintkote Company (U.S.) and Phillip Carey Manufacturing Company (U.S.) respectively), have separate subsidiaries for the manufacture of asbestos products in Canada, that of Nicolet Asbestos Mines (Norristown Asbestos and Magnesia Company (U.S.)), has no manufacturing operations in Canada.

A number of other companies have engaged in exploration and development work, and presently the United Asbestos Corporation controlled by the American Smelting and Refining Company (U.S.), and National Asbestos (Canada) Limited, a wholly owned subsidiary of National Gypsum Company (U.S.), are preparing for production this year. Advocate Mines Limited, a Canadian controlled Company, has a proved deposit in Newfoundland. At the present time this company is negotiating to conclude arrangements to bring their deposit into production.

Producing Companies

The most significant firms, volumewise, in the industry are the Canadian Johns-Manville Company Limited, the Asbestos Corporation Limited and the Johnson's Company Limited, in that order.

The Canadian Johns-Manville Company presently produces well over 50 per cent of the total Canadian output. In 1957 this company produced approximately 568,000 tons of fibre, of which, it is estimated, close to 75 per cent would be classified as " shorts ".

The Asbestos Corporation Limited and the Johnson's Company Limited are both independent producers and it is estimated that these firms would account for about 20 per cent and 10 per cent of Canadian output, respectively.

The Bell Asbestos Mine normally would ship its entire production, estimated at about 5 per cent of Canadian output, to companies in the Turner-Newall Group. This is considered to be a relatively high grade operation ; that is, production of " shorts " would probably be under 30 per cent of output.

The Cassiar Asbestos Company Limited is truly a high grade operation. Due to location of their mine in Northern British Columbia, it is not as yet profitable for the company to recover fibre below Group 4, because of the high cost of shipping. Cassiar would account for slightly under 1 per cent of the total Canadian output.

The remaining companies—Quebec Asbestos Corporation Limited, Flintkote Mines Limited and Nicolet Asbestos Mines Limited—are believed to be low grade operations. Their share of the total Canadian output is estimated at about 5 per cent each, of which over 75 per cent would probably be as " shorts ".

Production and Markets

The production record of Canadian asbestos mines since 1900 is shown in a chart (not here reproduced), which illustrates the production and consumption trends resulting from new demand patterns, and the resulting shifts in the grades of asbestos fibre produced. The proportion of " crude ", " milled fibre " and " shorts " to " total production " since 1900 is shown. Relatively, " crude " which once brought in the whole of the industry's revenue has declined as a commercial product ; " milled fibres " have however continually been in demand. From a position of surplus fifteen years ago demand for " shorts " grew so rapidly that the industry had to improve its mining and milling techniques and was successful enough to raise the extraction rate of short fibres by over 40 per cent.

Since the close of World War II there have been continuous additions to milling capacity, accompanied by extended mining operations.

For the past three years total asbestos production in Canada has been slightly greater than 1,000,000 tons, and in 1957 the peak value of production—$106,400,000—was reached.

Roughly 65 per cent of volume is made up by " shorts ", and 35 per cent by " milled fibres ". Production of " crude '

is quite small, less than 1,000 tons. In terms of value, however, producers receive about two thirds of their revenue from "crude and milled fibres" and one third from "shorts".

The price of asbestos per ton is defined by the grade of the product, as indicated by the table. The prices quoted are per s.ton f.o.b. mine Canada, 1958.

Standard Grade Designation	*Price range per ton* $Cdn.	*Minimum carload quantity tons*	*Freight classification*
No. 1 and No. 2 (Crude) ..	790. to 1850.	20	Crude
Group No. 3 (Spinning Fibre) 3F-3K-3R-3T-3Z	370. to 650.	20	Fibre
Group No. 4 (Shingle Fibre).. 4H-4K-4M-4R-4T-4Z	180. to 245.	20	Fibre
Group No. 5 (Paper Stock) .. 5D-5K-5M-5R	120. to 150.	20	Fibre
GROUP No. 6 (Waste, Stucco 6D or Plaster)	86.	30	Waste
Group No. 7 (Shorts or Refuse) 7D-7F-7H-7K-7M-7R-7T-7RF-7TF	40. to 80.	30	Shorts
Group No. 8 (Sand)	29.	30	Shorts
Group No. 9 (Gravel).. ..	—	30	Shorts

Markets

While asbestos products manufacturing is growing in Canada only 3 to 5 per cent of domestic fibre production is required for domestic use. Consequently the foreign market for asbestos is overwhelmingly the most important for the Canadian industry with the U.S. dominating the consuming countries. In 1957 the gross value of Canadian asbestos fibre exports was close to $110,000,000.

In recent years Canada's asbestos products industry has been growing. Since 1950 the value of asbestos products manufactured in Canada has risen from $14,000,000 to $34,000,000 in 1956, an increase of close to 150 per cent. This growth has not been sufficient to meet total domestic demand however ; both the United States and the United Kingdom supply considerable quantities of asbestos products to Canada.

While therefore expansion of the domestic manufacturing industry is proceeding, it is clear that a sizable increase could only arise from the establishment of foreign markets for asbestos products. This is restricted on the one hand by high American tariffs and on the other by the concentration of commercial control of the industry in the United States and the United Kingdom.

Mr. E. J. Bonkoff, B.A., Economic Geologist — formerly Commodity Officer, Industrial Minerals (Asbestos), Canadian Department of Trade and Commerce, Ottawa — was commissioned by General Research Associates to outline the development of the asbestos industry in Canada and delineate its present structure, as a basic step towards appraising the short term outlook and medium term future.*

Excluding gold, asbestos is Canada's seventh largest mineral export. In common with nickel, aluminium and copper, iron ore and crude petroleum, asbestos is very highly dependent on foreign markets for its industrial health. This means a high degree of sensitivity to world economic conditions in general. In common with these other basic industrial materials as well, asbestos for the first time since the end of the Second World War is faced with a real shrinkage in the international commodity market. Asbestos was probably the last of Canada's important mineral exports to feel the effects of the current economic recession. These effects became marked in the early months of 1958.

In overall value terms there was a fall of 18 per cent in all Canadian exports of asbestos during Jan.-March, 1958, as compared with the corresponding period of last year. In volume terms this would be somewhat higher, perhaps 20 per cent, due to price increases.

The Outlook

The immediate future of the industry will be determined by the ultimate severity and protractedness of the cyclical readjustment through which the North American economy is now passing. It appears fairly certain that sufficient demand to take up the million or so tons of Canadian asbestos production—the rate of the past three years—is unlikely to be forthcoming in 1958.

Another important aspect of the situation of Canadian asbestos is the significant additions to productive capacity recently completed or nearing completion in Canada.

* *The Canadian Asbestos Industry*, by E. J. Bonkoff, General Research Associates, 4 Richmond Street East, Toronto, Canada. 41 pages. $15.50.

Aerial view of Canadian-Johns Manville's Munro mine and mill, located 12 miles east of Matheson in Northern Ontario. Foreground, open pit asbestos mine ; background, mill buildings and tailings pile.

The Canadian Johns-Manville Company Limited is now able to produce at least 10 per cent more fibre per year from their new modern mill. The new Normandie Mine of the Asbestos Corporation is now able to produce at full capacity. Flintkote Mines Limited have recently completed doubling their mill capacity. The Cassiar Asbestos Corporation have increased their mill capacity to improve the economics of their operation.

The American Smelting and Refining Company who control and operate the asbestos deposit of the United Asbestos Corporation plan to be in production in 1958 with a 5,000-ton-per-day mill. The National Gypsum (Canada) Limited have acquired a 500-acre proven asbestos property, east of Thetford Mines, from the Bell Asbestos Mines Limited. They expect to have a 3,000-ton-per-day mill in operation this year.

The Quebec Asbestos Corporation, which located a new asbestos deposit nearby their original mine, are building a new and larger mill with a capacity of 2,500 tons per day. On completion this year they plan to scrap their old mill. The name Quebec Asbestos Corporation is also being changed to Carey-Canadian Mines Limited. The Asbestos Corporation is building a new mill to be completed in 1958 with a daily capacity of 5,000 tons, to be known as the King-Beaver Mill. On completion, the existing and operating King-Mill is to be closed. Advocate Mines Limited should get their property into production by 1960, at the initial rate of 2,000 tons per day.

In total, the increase in productive capacity recently completed and to be completed should permit the industry to produce theoretically at least 25 per cent more fibre per year by 1960. (The effect of these increases in productive capacity should be felt by 1959.)

With this increase, probably about 250,000 tons of fibre annually, the Canadian asbestos industry seems likely, at least for the next year or two, to have to operate at a level of 80 to 90 per cent of capacity rather than the 100 to 105 per cent rate of the past decade. This lower level however can be quite profitable and more healthy in the long run.

A further important factor, but unfortunately an imponderable, is the growing strength of Russian competition particularly in the industrial complex of Western Europe.

While the Canadian asbestos industry may have entered a period of levelling out, compared with a decade of rapid expansion since 1945, this does not indicate a serious setback. The industry is highly efficient, dealing in a relatively new product undoubtedly capable of many new applications which will emerge from the intensive scientific research being conducted.

When the next period of expansion in the industrialized countries of the world begins, the Canadian industry will be well fitted to keep pace with renewed demands. The North American population bulge alone, which will begin to be felt within two years, assures a strong market for many goods in which asbestos is an important and growing essential—particularly housing and automobiles. Defence needs in the "missile economy", the uses for asbestos in the development of atomic energy should open up limitless fields for present and future applications of asbestos products.

In the long view the present doldrums of the Canadian asbestos industry can only be regarded at worst, as a period of marking time before a new period of great prosperity.

Gypsum and Anhydrite

CALCIUM sulphate occurs in nature as two well-defined minerals: gypsum, $CaSO_4.2H_2O$, and anhydrite, $CaSO_4$. These important minerals are the subject of a comprehensive monograph by A. W. Groves, of the Overseas Geological Surveys, Mineral Resources Division (*Gypsum and Anhydrite*, H.M.S.O., price 7s. 6d. net). Gypsum plaster is one of the oldest building materials in the world. Anhydrite, which was formerly considered useless, has in the last few decades become an important industrial raw material.

The spectacular growth of the gypsum industry in the twentieth century is attributed mainly to the expansion in building, coupled with the increasing application of gypsum products to building methods. Rapid methods of building construction, the need for lightweight materials, and a general awakening to the importance of fire resistance and fire-retarding materials have greatly increased the demand for gypsum products. The period since the First World War has also seen the large-scale utilization of anhydrite for the manufacture of ammonium sulphate, "nitro-chalk", sulphuric acid and cement. The prospect for the anhydrite industry is one of steady growth as the world's chemical industries expand, and this growth is likely to be the more rapid in those industrialized countries which are unable to obtain all their sulphur requirements from elementary sulphur and iron pyrites.

The production of gypsum plus anhydrite in the U.K. increased from 1,000,000 tons in 1938 to 3,300,000 tons in 1956 and in Canada over the same period from just under 1,000,000 tons to 4,600,000 tons. The production of gypsum in the U.S. rose from 2,400,000 l.tons in 1938 to 9,200,000 tons. Similar increases are shown by most other producing countries. The world total is estimated to have risen from 7,000,000 l.tons in 1938 to 27,000,000 in 1956.

So many parts of the world are endowed with gypsum deposits, often of ample size, that most countries ranking as important consumers are able to obtain the major part, at least, of their requirements from local sources. Moreover, being a low-priced commodity, gypsum is not usually transported any greater distance than may be essential to obtain supplies. It does not, therefore, enter very much into international trade, the principal exception being large-scale shipments from the Maritime Provinces of Canada to the eastern seaboard of the U.S.; smaller exceptions are provided by Cyprus and Jamaica. Like other low-priced commodities, gypsum has to be present in large tonnage at or near to ocean transport before its export can be considered. Countries deficient in both gypsum and fuel prefer to import the calcined product, i.e. plaster.

In the Free World the principal producers in order of relative importance are the U.S., Canada, France, and the U.K. (bracketed together in third place), followed by Spain, Australia, Japan, India, Egypt, the Union of South Africa, and numerous smaller producers. Colonial producers in order of importance are Cyprus, Jamaica, Tanganyika, and Kenya.

In view of the very limited international trade, and the fact that by far the greater part of the world's crude gypsum is not sold as such but is calcined by the producers, prices for the mineral are not published nearly so frequently as is the case of most other industrial minerals. The net selling value at mine or quarry reported for the 3,334,200 tons of gypsum and anhydrite produced in the U.K. in 1956 was £3,816,000 or 22s. 11d. per ton. There are innumerable grades and qualities of gypsum, for which the prices of the roughly ground crude material at English sources of production vary from about 20s. to 30s. up to about £6 per ton.

Machinery and Equipment

The Case For "Intermediate" Ignitercord

Ignitercord is now becoming accepted as a medium, the use of which makes possible great advances in stoping yields. The cord also provides a major contribution to safety during blasting operations. It appears that Ignitercord is gaining increasing approval, as present capacity by African Explosives and Chemical Industries totals some 30,000,000 yds. of fast-burning and 2,250,000 yds. of slow-burning cord per month.

The fast-burning cord was developed chiefly for stoping operations, and is being used on an increasing scale. Slow-burning Ignitercord found its application in development where sequential firing is needed.

Considerable work has been accomplished in the development of an "intermediate" cord, although the commercial production stage has not yet been reached. The application of slow-burning Ignitercord has proved impracticable, chiefly because of the close proximity of the burning front of cord to exploding shots and the resultant danger of the trunk-line of cord being cut by flying debris. Experiments so far concluded suggest that the use of the "intermediate" cord would obviate this while simultaneously permitting concentrated blasting in stoping operations.

The African Explosives team is also engaged in continuous research into modifications of existing Ignitercord techniques. One such is that concerned with a new form of connector to eliminate the risk of damage to the cord inherent in the current metal slotted type of connector.

CONCENTRATING TABLE SUSPENSION

The introduction of the new Curnow spring-type deck suspension No. 25 concentrating table, manufactured by the Wilfley Mining Machinery Co. Ltd., is claimed as heralding the biggest improvement in table suspension for many years.

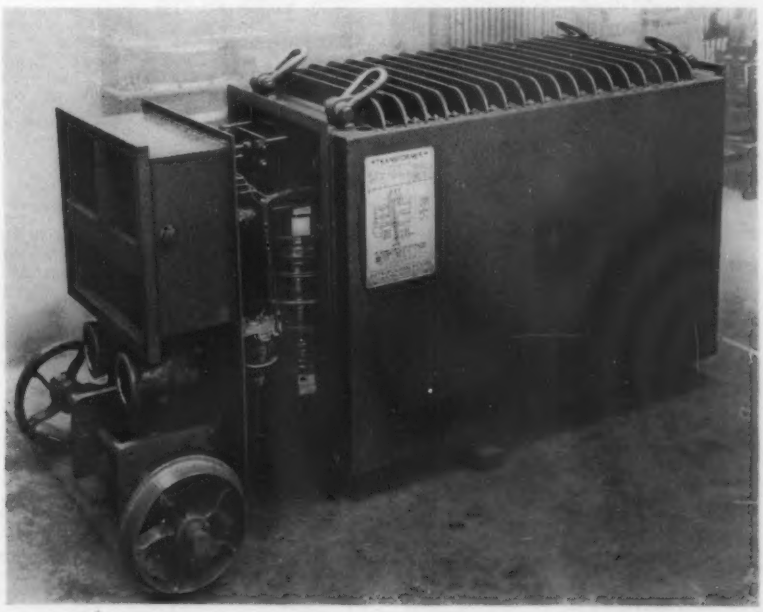
The deck suspension consists of two laterally mounted laminated steel springs which give an almost frictionless reciprocating movement and at the same time hold the table surface perfectly rigid. To tilt the table, it is only necessary to loosen the drawbar nut and incline the table by hand to the required position. The nut is then tightened and the table immobilized.

Principal applications of the equipment are for the concentration of low-grade ore to produce high-grade concentrate for smelting; the re-concentrating of middlings after regrinding; the separation of mineral from mineral in the table or flotation concentrate; supplementing treatment by the flotation process by recovering coarse mineral; as well as employment as pilot tables following flotation cells to indicate their efficiency. The tables may also be used to recover metallics from foundry residues and other industrial waste, to produce clean pyrites from brassy coal for acid manufacture, to clean coal washery slurry for combustion to make clean barytes, witherite, fluorspar, and the like, and to separate iron from silica sand.

In operation, it is stated that the frictionless mounting provides for better stratification due to its greater control over the deck movement. In addition, less power is required to operate the table, and since bearing surfaces have been eliminated, less maintenance is required.

The latest development in the Conveyancer range of Fork Lift Trucks Ltd., is the new T. C. yard model, illustrated handling timber at Bickershaw Colliery. The cab is a feature added by the N.C.B.

In the Metropolitan-Vickers 300-kVA. nitrogen-filled Class H insulated mining transformer illustrated, the core and windings are partially withdrawn, showing the internal construction and the protective current transformer, which also has Class H insulation. The air-filled chambers on the left, with covers removed, are of flameproof construction as laid down in B.S. 229, but not certified. They house the H.V. tapping terminals and links, the neutral link and fuses and the L.V. line terminals



NEW COOLING SYSTEM FOR POWER STATIONS

Cooling towers being developed by the English Electric Co. from a design proposed by two Hungarian engineers are expected to eliminate the need for power stations to be built on the traditional sites in vicinity of rivers, lakes or the sea.

In conventional plants exhaust steam from the turbines is normally condensed by passing large quantities of water through surface condensers. This cooling water is then cooled by spraying.

In the new system pure cold water is injected into the exhaust steam to condense it. The condensate is cooled in a "dry tower" by directing a flow of air over an aluminium cooler system. The cooled condensate is then used to condense more steam. Internal corrosion of the plant will be eliminated as the system is completely closed and the water retains its purity.

Metals and Minerals

Protectionism or Freedom for the Aluminium Trade?

The existence of two divergent schools of thought as to the desirability of artificial restrictions on the movements of primary aluminium was underlined last week by the conflicting views put forward in addresses by two leading members of the industry in North America.

The difficulties caused by the present—and essentially temporary—phase of oversupply (considerably aggravated by the inopportune appearance in world markets of cheap metal from Communist countries) have led to demands for import curbs, and these are not confined to the United States. In West Germany, for instance, Vereinigte Aluminium Werke, the country's largest producer of aluminium, has been urging the government to abolish the annual duty-free import quota of 40,000 tons and reintroduce the 7 per cent duty formerly levied on all aluminium imports.

The case for artificial restrictions on the aluminium trade was put by Mr. Lawrence Litchfield, jun., vice-president of Alcoa, in an address to the annual conclave of the American Mining Congress in San Francisco. Mr. Litchfield outlined three essential elements of what he termed a sound national minerals policy for the United States aluminium industry. These were: (1) permanent provision for the importation of foreign bauxite on a duty-free basis; (2) establishment of an import quota and surplus disposal programme for aluminium through negotiation between the United States government and other countries; and (3) encouragement of research and development to improve aluminium processing at all levels.

The first and third of Mr. Litchfield's "essential elements" are unexceptionable. In principle, however, any measures to restrict the free movement of metal would be widely deplored. In the United States itself, there must be many people who believe that restrictions are particularly shortsighted in the case of a metal so dependent for its future as aluminium on the development of new market outlets and the large-scale expansion of existing uses.

Strong opposition to proposals for protectionism and higher tariffs on the international movement of primary aluminium into the European Common Market and the United States was voiced by Mr. Nathanael V. Davis, president of Aluminium Ltd., Canada, in his address to the Executives' Club of Chicago.

Mr. Davis emphasized that, although strong groups on both sides of the Atlantic were urging higher tariffs on primary metal, aluminium was subject to the same economic laws as wood, plastics, steel, and other competitive materials. The choice whether to use aluminium or a competing material was frequently a matter of price. If import restraints were built into the aluminium industry, the competitive position of aluminium could only be adversely affected. "Because of its virtually unlimited mineral resources and wide application", said Mr. Davis, "aluminium can be used to build better lives for the peoples of the world. It would be regrettable if this challenge were forfeited by burdening the industry with artificial restrictions".

Pointing out that the six-nation area of the Common Market was a net importer of primary aluminium, Mr. Davis said that, although no decision had been reached, reports indicated that the three producing nations were promoting the erection of a high tariff designed to prevent imports of primary aluminium from outside areas. If made effective, he declared, such a step would place behind a high tariff barrier the consuming power of some 160,000,000 people. It would tend to break up rather than consolidate the Free World economy.

As a result of rapid plant expansion and a levelling of demand, the aluminium industry as a whole has idle capacity at the present time, and there is intensive competition among all producers in domestic and international markets which has caused a weakening of prices. Mr. Davis described these developments as normal corrective forces designed to bring about most quickly a greater volume of consumption and a more satisfactory return on capital.

In conclusion, he stressed that the free enterprise system to which the Western World subscribes would be judged by its ability to maintain high levels of consumption by providing goods and materials to the public at minimum economic prices. "Protected regionalism is the very antithesis to such a basic concept", declared Mr. Davis. "Protectionism and its corollary, an artificial price structure, are not designed to make the best use of efficient and low-cost production".

These are observations which the advocates of protectionism would do well to ponder!

*

Olin Mathieson Chemical Corporation has taken two steps designed to place its new jointly owned United States aluminium plants in full operation by the end of 1958. It has launched the first of three new aluminium ore ships in Hamburg, West Germany. In addition, the new aluminium reduction plant in Hannibal, Ohio, has received 20,000 tons of alumina from fourteen barges loaded at the Burnside, Louisiana, alumina plant. This was the first of fifteen regularly scheduled trips a year. The Burnside and Hannibal plants belong to Ormet Corporation, which is jointly owned by Olin Mathieson and Revere Copper and Brass Inc.

*

The Australian Aluminium Commission made a profit of £A25,792 in 1957-58, which was less than half the £A52,359 profit made in the previous year. At 10,269 tons, sales represented a slight increase of 184 tons. The main reasons for the fall in profit were technical difficulties encountered in some sections of the works at Bell Bay, Tasmania, lower selling prices—which reduced income by £A50,000—and problems associated with the production of new types of aluminium products. Last October, when the Commission reduced its selling price for aluminium by £A6 10s. to £A271, the landed duty-free cost of Canadian pure ingot aluminium was £A261 a ton. Canadian suppliers subsequently made world-wide reductions, bringing their price down to £A226 a ton.

The Commission has examined the scope for reducing prices to compete with the recent Canadian and Russian prices. It believes that a substantial increase in the size of the Bell Bay plant—which is only one-third the size of the smallest North American plant—would offer the only means of achieving a significant price reduction.

The Commission's statement followed the announcement by the Minister for National Development, Senator W. H. Spooner (as reported in this column last week), that he was examining the possibility of obtaining private enterprise capital to help expand the Bell Bay plant.

MEXICAN LEAD AND ZINC BAN

From October 1, Mexico is to ban the export of lead and zinc metals, compounds and ores, because of the United States restrictions on the import of lead and zinc. A presidential decree said the ban would be enforced until the Economy and Treasury Ministries had determined the form in which exports could be carried out in view of the United States quotas. Any lead and zinc shipped up to September 29 will be allowed to leave the country even if it arrives at the final Mexican shipping port after October 1. The ban on Mexican exports of lead and zinc applies to shipments to all destinations—not only to exports to the United States.

NEW YORK SILVER

Improved demand is reported from New York with domestic business rising on October 1 to 325,000 oz. The open market price is currently 89⅛ c. per oz. fine.

SOUTH KOREAN TUNGSTEN

The government-owned Daihan Tungsten Corporation has announced that the world-wide market slump has affected the export of South Korean tungsten ore. This year's exports of tungsten are expected to reach only £700,000 compared with £11,500,000 earned in 1953. Tungsten's share of the South Korean export trade in 1953 was 70 per cent. This year it will be about 9 per cent.

PLATINUM IN AIR POLLUTION CONTROL

The use of platinum oxidation catalysts in the control of air pollution is discussed by J. H. Houdry and C. T. Hayes in the October issue of *Platinum Metals Review*, published by Johnson, Matthey and Co. Ltd. Catalytic com-

bustion as a means of controlling or eliminating unpleasant fumes from industrial processes has made considerable progress, and many air pollution problems are now being solved in this way. The catalytic element used on the installation described is known commercially as the Oxycat, the catalytic agent of which is a combination of platinum and alumina. In view of the attention currently being devoted to air pollution problems, this field should provide a growing outlet for platinum. The design and composition of the Oxycat permits operating temperatures as high as 1,800 deg. F., which in itself is a feature that has greatly extended the possible fields of application.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

Following the excitement of the previous week, the past week has been uneventful, with price movements being small. The undertone for copper has remained firm due to the continuation of the strikes in both Rhodesia and Canada; the undertone for tin remained very firm due to the statistical situation and also to the behaviour of the market in Singapore at the beginning of the new quota period. In spite of the introduction of quotas into the United States as from October 1, the undertone for both lead and zinc appears to have improved.

COPPER REMAINS FIRM

Very little has happened in the copper market, and prices have shown hardly any change. The level quotations for cash and three months' metal which have been maintained over the last few weeks have continued, with stocks in official warehouses showing a small drop of about 300 tons during the week.

News from America indicates that consumers are showing a little more interest in replenishing their inventories, and the big question is whether the continuation of the strikes will enable the American quotations for the metal to be raised in the near future. It is pointed out that at the present moment approximately 20 per cent of the Free World production is strike-bound, and that this must have some effect on quotations later on this year.

Against this there are continuing signs that the consumption of copper in the United Kindom and Europe is not being maintained at the high rate of the first half of the year, and although it is not expected that demand will diminish by as much as 20 per cent, it may be that there are sufficient stocks to prevent the necessity for any emergency buying.

LONDON METAL AND ORE PRICES, OCT. 2, 1958

METAL PRICES

Aluminium, 99.5%, £180 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) bases 19s. 6d./20s. 6d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 9s. 6d. lb.
Cerium (99%) net, £16 0s. lb. delivered U.K.
Chromium, Cr. 99% 6s. 11d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram.
Gold, 250s. 2½d.
Iridium, £20/£22 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96% - 98%) £290
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £17/£18 oz. nom.
Osmiridium, nom.
Palladium, £5/£5 15s.
Platinum U.K. and Empire Refined £21 5s. oz.
Imported £18 15s./£19 15s.
Quicksilver, £79 0s. ex-warehouse
Rhodium, £40/£42 oz.
Ruthenium, £14/£16 oz. nom.
Selenium, 50s. 0d. per lb.
Silver, 76½d. f. oz. spot and 76¼d. f'd.
Tellurium, 15s./16s. lb.

ORES AND OXIDES

Bismuth	30% 5s. 0d. lb. c.i.f. 20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48% (Ratio 3:1)	£15 15s. 0d. per ton c.i.f.
,, Hard Lumpy 45% (Ratio 3:1)	£15 10s. 0d. per ton c.i.f.
,, Refractory 40%	£11 0s. 0d. per ton c.i.f.
,, Smalls 44% (Ratio 3:1)	£14 0s. 0d. per ton cli.f.
Baluchistan 48% (Ratio 3:1)	£11 15s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£25 0s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46% - 48%) basis 55s. 0d. freight	83d./85d. per unit c.i.f.
Manganese Ore (43% - 45%)	70d./75d. per unit c.i.f.
Manganese Ore (38% - 40%)	50d./54d. per unit c.i.f.
Molybdenite (85%) basis	8s. 5d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£35/£36 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	60s. 0d./65s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 95% V_2O_5	8s./8s. 11d. per lb. V_2O_5 c.i.f.
Zircon Sand (Australian) (65 - 66% ZrO_2)	£13 0s. per ton c.i.f.

TIN ON THE TURN

Dealings in tin have been on a very restricted scale, but the market has shown praiseworthy stability, and the majority feeling is that prices will go to higher levels later in the month. The communiqué issued by the Tin Council at the end of last week was admirable for its brevity and met with a good reception, as it signified that there was to be no change in the present rules covering the activities of the buffer stock manager, and re-emphasized the intention of the producer countries to carry on with the scheme. The main surprise came at the Press meeting the next day, when in response to questions it became apparent that the special contribution was not subject to the rules governing the acquisition and disposal of the tin dealt in under the terms of the original agreement. This point is dealt with more fully on page 356 in this edition of *The Mining Journal*. The next meeting of the Council will be on November 5, 1958.

In the United States, according to the latest figures issued by the Bureau of Mines, tin consumption in July remained practically unchanged from the previous month, the figures being for primary tin in July, 3,955 l.tons, and for June, 3,885 l.tons. Total tin stocks, however, increased during the month from 34,805 l.tons to 36,035 l.tons.

On Thursday morning, the Eastern price was equivalent to £741¼ per ton c.i.f. Europe.

RECOVERY IN LEAD-ZINC

Following a rapid decline on the announcement of the introduction of import quotas into the United States, the lead and zinc markets have recovered on consideration of a number of factors, the chief of which being the violence of the reaction in producer countries to the American action; the second, the announcement from Mexico that for the time being exports of lead and zinc are being completely prohibited pending a review of the whole situation; and finally, the publication of a letter from President Eisenhower to the Australian Prime Minister, which seemed to indicate that there was some possibility of the administration altering its attitude in the not too distant future.

Demand for lead in America has been good, and this enabled the price to be raised by 0.5 c. per lb. to 11.50 c. per lb. New York. Outside the United States, however, demand is reported to be only of a routine nature. The same pattern exists in the zinc market, and it would not come as a surprise if the United States zinc price was also raised in the very near future.

Closing prices are as follows:

	Sept. 25 *Buyers*	*Sellers*	Oct. 2 *Buyers*	*Sellers*
COPPER				
Cash	£212½	£212½	£213½	£213½
Three months	£212½	£212½	£213½	£213½
Settlement	£212½		£213½	
Week's turnover	6,725 tons		6,575 tons	
LEAD				
Current ½ month	£69½	£69½	£71½	£71½
Three months	£70½	£70½	£72½	£72½
Week's turnover	5,250 tons		6,300 tons	
TIN				
Cash	£710	£712½	£729½	£730
Three months	£700	£702½	£721	£722
Settlement	£712½		£730	
Week's turnover	835 tons		580 tons	
ZINC				
Current ½ month	£65¼	£65½	£66½	£66¾
Three months	£65½	£65¾	£66½	£66¾
Week's turnover	6,925 tons		7,150 tons	

MINING MISCELLANY

In Kweichow province, China, a dozen workable deposits of bauxite have been discovered. Some have an aluminium oxide content of 80 per cent.

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An ore deposit, estimated at 10,000,000 tonnes, has been discovered in Chekiang province, Hsiaoshan County, China, with a copper content of over 1 per cent.

★

Because of the recession in heavy industry in Britain, the United States, Canada, and elsewhere, Rhodesian Alloys, one of Gwelo's two biggest factories, is to shut down temporarily from October 15. There will be no retrenchment. The 100 Europeans and the 300 Africans employed by the company will be kept occupied on overhauling machinery and buildings. The shutdown will have repercussions on the chrome mines, the Wankie colliery, the Railways, and Umniati power station. Rhodesian Alloys is almost solely on export business and has built up large stocks of low carbon ferro-chrome.

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As previously reported, an agreement has been reached between the government of Japan and the government of India for a yearly export of 2,000,000 tons of iron ore from India to Japan. It has been announced that a new publicly owned corporation is to be set up to operate the mines in Orissa, and possibly in other parts of India as well. The government of India hopes to appoint consulting engineers this month to advise on the mining part of the project. The consultants will be expected to stay until the mines are in operation in about five years' time.

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It was announced at a National Conference on Coal Mining that China intends to introduce hydraulic mining on a wide scale. Two coalpits have already been converted to hydraulic mining. They are located in the Kailan coalfield, Hopei province, and at Yangchuho, Feng Feng colliery, Hopei province. At the latter colliery, the use of hydraulic methods is said to have increased annual production from 210,000 tonnes to 600,000 tonnes. It is intended that by the end of 1959 the Kailen, Chiawang, Fusin, Feng Feng, and Ping Siang collieries will all have switched over to hydraulic mining.

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Mining operations at Karvasvaara, near Rovaniemi, in Lapland, are scheduled to begin next summer, where deposits of iron ore have been found. The deposits are believed to consist of at least 800,000 tons of ore with a content of about 58 per cent.

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A permanent mission of French coal-mining engineers is to be established in Buenos Aires and at Rio Turbio, in Argentine Patagonia, to carry out a contract aiming at increasing coal output at Rio Turbio from 300,000 tons a year to 2,000,000 tons by the end of 1963. The contract, signed between Sofremines, a technical subsidiary of the French State Collieries, and Yacimientos Carboniferos Fiscales, the Argentine State Coal Authority, provides for $42,000,000 of investment in coal-mining equipment.

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United States Steel Corporation, the world's largest steel producer, is pushing on with its plan for the development of immense new iron ore resources in Canada. Quebec Cartier Mining Co., its Canadian subsidiary, which holds title to the iron deposits in the Mount Read-Mount Wright area of Quebec, has announced the award of contracts for the construction of a 193-mile railway between Port Cartier and Lac Jeannine and for the general construction in connection with a 60,000 h.p. hydroelectric plant on the Hart-Jaune River. These contracts cover portions of an estimated $300,000,000 project aimed at the production of 8,000,000 tons of concentrated iron ore annually.

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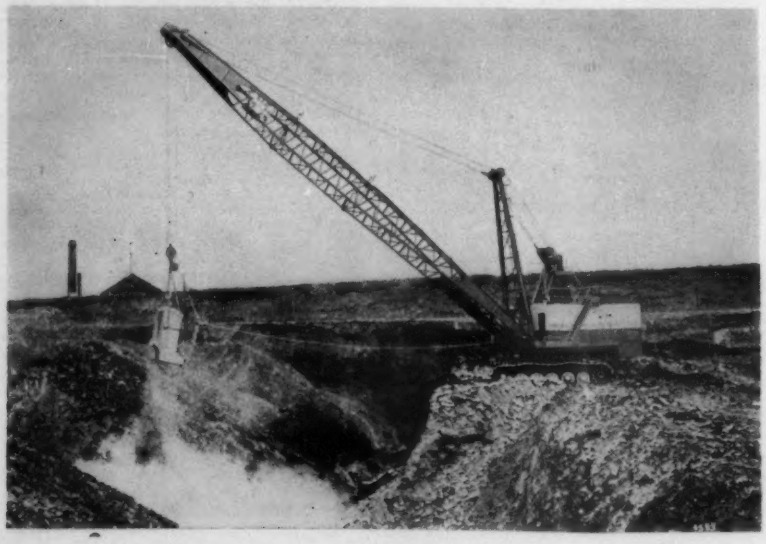
The Anaconda Co., second largest copper producer in the world, has announced the formation of a new subsidiary, Anaconda-Jurden Associates Inc. The new organization—formerly the extensive engineering department of the parent company—offers a complete service in the planning, designing, engineering, and construction of industrial plants of major size. The former Anaconda Engineering Department was a completely integrated unit which, since World War II, has designed and constructed more than $1,000,000,000 of metallurgical and industrial plants in the western hemisphere. These facilities include not only plants erected for Anaconda and its subsidiaries, but also a commercial taconite plant for Erie Mining Co. in Minnesota, and numerous key installations for Phelps Dodge Corporation. Projects under the new firm's supervision for design and construction include the $110,000,000 El Salvador sulphide copper plant of Andes Copper Mining Co. in northern Chile, Anaconda's $40,000,000 integrated aluminium fabricating plant in Terre Haute, Ind., and numerous others.

The Ruston-Bucyrus 150-RB Electric Dragline at the Amberswood opencast coal site at Hindley, Nr. Wigan, Lancashire. A special demonstration of the electric dragline took place at the end of last month to bring to the notice of opencast coal contractors the merits of the dragline



PERSONAL

We regret to announce the death, on September 29, of Mr. F. A. Spence-Brown, a joint managing director of Johnson, Matthey and Co. Ltd.

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Mr. H. D. Hubbard has withdrawn as an alternate and has been appointed a director of the Lydenburg Gold Farms Co. and the New Witwatersrand Gold Exploration Co.

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Mr. W. H. Sharland, a director of Powell Duffryn Ltd., has been appointed deputy chairman of the company. Mr. R. C. Saloway has also been appointed a director.

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Mr. R. Turner has been appointed a managing director of Johnson, Matthey and Co. He relinquishes his position as managing director of Mallory Metallurgical Products Ltd., a subsidiary company, but remains a director.

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Mr. J. I. Spens has been appointed a director of Kundang Tin Dredging, Larut Tin Fields, Tongkah Harbour Tin Dredging, Jelapang Tin Dredging, Kampong Lanjut Tin Dredging, and Kramat Tin Dredging, in the place of Mr. W. M. Warren, who has resigned. Mr. Spens has also been appointed a director of Kuala Kampar Tin Fields.

★

Mr. W. J. Vaughton and Mr. A. F. Thomas, both directors of the Delta Metal Co., have joined the board of James Booth and Co. Mr. Vaughton has also been appointed joint managing director of James Booth in place of Sir Horace Clarke. Sir Horace continues as chairman of the company.

Mr. R. F. Hatto has retired as Sales Director of Wolf Electric Tools Ltd. after forty-five years with the company.

COMPANY EVENTS

Negotiations between Birlec Ltd. and Efco Ltd., two leading electric furnace manufacturers, for the formation of a new company to take over certain sections of their business have reached an advanced stage. The new company will be called Birlec-Efco (Melting) Ltd., and its offices will be near Birmingham, at Aldridge, Staffordshire.

★

A small group of National Coal Board Industrial Relations officials, at the invitation of the German mining industry, are spending a week in the Ruhr for discussions with German labour mining experts. This follows a visit from German labour directors to the National Coal Board earlier this year. The group is being led by Mr. J. V. Wood, director general of Industrial Relations.

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The English Electric Co. Ltd. and W. H. Dorman Ltd., of Stafford, have entered into an agreement whereby each will promote the sale of the other's product. The diesel engines of each company are complementary and jointly represent a power range of 20 h.p. upwards.

CONFERENCES AND EXHIBITIONS

The opening meeting of the fourteenth annual session of the North-Western Fuel Luncheon Club will be held in the Engineers' Club, Manchester, on October 8, 1958.

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A conference dedicated to the subject, "Alerting Management for a Salesmanship Economy" is to be held at the Royal Festival Hall on October 20. The conference has been arranged by the Incorporated Sales Managers' Association.

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The Abstracts of the Council of the Institution of Mining and Metallurgy are to be published in printed form, beginning with Vol. 9, No. 1, October-November, 1958. The price for the six issues in the year has accordingly been increased from £1 10s. to £2.

★

The 1958 Sir Alfred Herbert paper, "The European Common Market—Its Origins and Implications", will be presented by Sir Cecil Weir, K.C.M.G., K.B.E., M.C., D.L., at a meeting of the Institution of Production Engineers at the Royal Institution, London, on December 11, 1958. The chairman will be the Rt. Hon. the Earl of Halsbury, F.R.I.C., F.Inst.P., M.I.Prod.E., President of the Institution.

AGENCIES WANTED

Harrington and Co. (Far East) Ltd., P.O. Box 641, Singapore, wish to represent U.K. manufacturers of metals, building materials, and any other goods which are commonly traded on a representative basis. Manufacturers and their export agents interested in this agency inquiry should write direct to Harrington and Co. (Far East) Ltd., notifying the United Kingdom Trade Commissioner in Singapore, P.O. Box 620, Singapore, that they have done so. B.O.T. Ref. E.S.B. 22990/58. Telephone inquiries to Chancery 4411, extension 776 or 866.

Mining Finance

Johnnies Weather the Storm

As far as gold mining is concerned, the history of the Johannesburg Consolidated Investment Co. over the past few years has not been particularly fortunate. Since the war, three of the group's producers have reached the stage of exhaustion and closed down, while of the four remaining, Randfontein, once the Rand's greatest producer, now depends on a contractual uranium price to subsidize its dwindling gold operations; Government Areas, pioneer of the lease system for Rand gold mines, makes a modest living by producing pyrite from old mine dumps; and East Champ d'Or, the youngest and smallest mine on the Rand, has exhausted its gold and looks like exhausting its uranium before its contract expires in 1964. And over all has hung the unhappy story of Freddies Consolidated, valiantly battling against adverse conditions, all the while encumbered with a capital structure which would be a handicap to an averagely rich mine of twice the size.

On the other side of the balance, however, have been Johnnies' substantial holdings in the fields of coal, diamonds, platinum and base metals. The boom-years of the post-Korean period brought an increase in income from these sources to set against declining income from (and depreciation provisions on) the gold/uranium investments.

This year, however, has seen a reversal of the trend as far as the non-gold side of the business is concerned. It hardly needs repeating that dividends from Nchanga, Mufulira, Rhokana and Rhoanglo (the copper companies in which Johnnies is most deeply committed) have been severely cut; that sales of diamonds through the central selling organization have shown a decline each quarter since September, 1957; that Johnnies' two lead-zinc ventures in Ireland have been forced out of action by falling prices, so that Llanrwst is now on care-and-maintenance and Abbeytown in liquidation; and that the platinum industry, in which Johnnies has a most substantial interest, has been severely hit both by improved petroleum technology, leading to a reduced demand for platinum as a catalyst, and by offerings of "Red" metal which persistently undersell the Rustenburg product. Only coal has increased its contribution to Johnnies' profit and loss account, and this in spite of the rail difficulties with which South African collieries contend.

This is the background to the accounts to June 30, 1958, and the out-turn in terms of profits is by no means as large as might have been anticipated. Profit before tax came out at £2,340,434, a decrease of only £130,000 on the previous year's figure. However, £1,237,000 had to be provided against the fall in investment values, against which can be set a credit from taxation of almost £100,000 reflecting adjustments of previous year's appropriations and relief in respect of investment depreciation. From the balance has been declared a dividend of 4s. 6d., costing virtually the same as last year's 5s. which was made before 600,000 shares were issued to New Rhodesia Investments. £500,000 is transferred to investment reserve, and the balance carried forward is reduced from £297,550 to £241,086. The meeting will be held in Johannesburg on November 18, Mr. H. J. Joel presiding.

WESTERN AREAS — NO CHANGE

Awaited with more than usual interest, the annual report of Free State Development, the exploratory company of the Johnnies group, adds little to what is already known about the "Western Areas prospect" to the south-west of Randfontein. It will be remembered that last year an announcement was made to the effect that, although the area contained sufficient reef of high enough grade to be an economic proposition, the uncertainty of future economic trends—in particular, cost levels—made it necessary to defer the exploitation of the area indefinitely.

The latest report indicates no change in the position. No drilling has been done on any of Freddies' properties during the year, and referring to the western areas, the report states: "No further information is available".

Thus the accounts for the year reflect only income from the portfolio (largely, Freddies Consolidated, with small amounts of Harmony, Merries, and Virginia), sundry revenues and expenses. On this basis, net profit for the year was £8,425 against £12,199 in the preceding fifteen months. The carry-forward is now £181,201, and net current assets are £136,224. The advance statement by the chairman, Mr. D. A. B. Watson, is on page 369.

STRONG PROTEST FROM CONSOLIDATED ZINC

Consolidated Zinc Corporation has not been slow in issuing its reply to the quota restrictions about to be imposed on lead/zinc imports into the U.S.A. In a statement issued to the Press in Australia, the company sets down the position as seen through Australian eyes.

Exports from Port Pirie over the base years 1951-7 averaged 61,000 tons of lead metal per annum. After allowing for deliveries to the U.S. stockpile, it would appear that the B.H.A.S. quota will be 3,500 tons per month. Although the statement forebears to say so, this in itself is a cutback of rather more than the nominal 20 per cent, since Broken Hill's position with regard to lead is analogous to that of Nigeria in the tin scheme—increasing exports over the base years mean that a cut is relatively more severe than would be the case if exports were declining.

The statement points out that last July the Broken Hill companies voluntarily curtailed production by 15 per cent. Other world producers also made significant reductions, while some companies have been forced to curtail or even cease production. On the other hand, some producers have made no reductions, while others have actually stepped up output. The Broken Hill in-

dustry believes that the only way out of the present anarchy would be for all lead/zinc producing nations to give support to the recommendations of the U.N. committee and reduce exports to all countries pending the establishment of a world-wide control scheme.

"In common with other world producers, the Broken Hill industry objects strongly to the imposition of import quotas by the Government of the United States. The Broken Hill industry can only hope that the imposition of import quotas will, if nothing else, give a sense of urgency to the U.N. committee's deliberations which are to be continued next month. It is the view of the Broken Hill industry that only by intelligent global co-operation can the difficulties currently facing the world lead/zinc industry be resolved."

OPTIONS AGAIN

On Monday the London Stock Exchange resumes dealings in Options after a lapse of some 20 years.

Two types of option will be available from the small group of backers who will undertake such business: the *put*, and the *call*. There is also a double option, the *put or call*, which will cost double the price of the one-way facility. This is not the place to discuss the mechanics of the system; suffice it to say that the call is an option to buy a stated number of shares in one, two or three months' time at a price about 2½ per cent per month above the current quotation, while the put is an option to sell on the same terms.

Obviously this is a valuable investment facility. It is essential, however, to bear in mind that the price of an option is largely determined by marketability. Thus, although theoretically it will be possible to buy an option in any quoted company, in practice the field will be restricted to those shares in each section of the market which are readily marketable, others being ruled out by inflated cost. Below is an illustration of the approximate cost per share of an option in the case of some of the more active mining stocks.

Anglo American	6s. 9d.
Buffels	2s. 9d.
F.S. Geduld	4s. 3d.
P. Brand	3s. 3d.
Welkom	1s. 6d.
Ofsit	3s. 6d.
Middle Wit.	1s. 6d.
R.S.T.	1s. 9d.
Roan Antelope	1s. 4½d.
Nchanga	8s. 9d.
Ashanti	1s. 6d.
Inco	$7½
Shell	6s. 6d.
B.P.	5s. 6d.

It should be noted that these approximate rates are for options of three months' duration; the rates for one and two months are somewhat—but not substantially—lower.

LONDON MARKET HIGHLIGHTS

South African gold shares looked rather lost for a direction at the beginning of the week, but began to move forward again when the new account started on Wednesday. Previously, Riebeeck had been a particularly dull spot and toppled to 18s. 9d. on disappointment that the meeting had given no details of the reef intersection made in drilling from the Loraine drives. Cheap buyers soon reappeared, however, and this, together with some steady Cape support, soon took Riebeeck up to a new peak of 21s. 6d. The rest of the Kaffir market at the same time began to shrug off its lethargy and prices were quick to respond to forecasts of a good crop of monthly profit returns. Buffels jumped to 42s. 3d., while Merriespruit brightened to 5s. 6d. on hopes that dewatering of the mine is making some progress now.

Diamonds were a solidly firm market, the main factors being hopes of a recovery in September quarter's sales figures coupled with the strength of Wall Street. A fair amount of talk was heard about the United States' proposal to resume stockpiling of industrial diamond "dies". De Beers advanced to 115s. 7½d. "Casts" to 16s. 4½d., and Anglo Trusts to 192s. 6d.

The most fitting description of the tin and lead-zinc share markets was "bewitched and bewildered". This was understandable enough in view of what was happening—or not happening—in the respective commodity prices. Tins, for example, basked for a while on the recovery in the metal price. Later, share prices about-turned on gloomy forecasts that the metal price would plummet through a hole in the floor when the new sales quota period began on October 1. When the fateful day arrived, however, and the anticipated selling was well absorbed, cash tin promptly jumped to £732 a ton in London, and like the Duke of York's men, share prices marched up again. In the meantime, Southern Kinta pleased the market with its final dividend (and rose to 16s. 6d.xd), while Kent sagged to 1s. 3d. following their announcement that operations were to be suspended for a while because of production quota and other problems.

Lead-zincs were similarly nonplussed. Before the share market had quite recovered from the shock of the proposed United States import quota restrictions on lead and zinc, it was busily trying to assess the importance of Mexico's ban on exports of these metals. The Mexican producer, San Francisco, was quickly lowered 6d. to 18s. 6d.

Then out of the blue came a United States statement that because of Australian protests the quota plan might not come into force after all, provided some alternative scheme could be worked out. This seemed to be precisely where we came in, and accordingly lead-zinc shares headed upwards to where they had been before the original quota news had broken.

Coppers alone of the base metal sections remained unruffled. The only outside factors at work here were the Copperbelt and Sudbury labour strikes. Because the strike on the Copperbelt had had comparatively little effect on the metal price, a more hopeful turn of events in the situation similarly found little reflection in either metal or share prices. Chartered, however, were a steadily firm market and moved up to 71s. 6d. as investment buyers found few shares available.

MORE FROM CORNER HOUSE

Following swiftly on the formation of Corner House Investments on September 18, Mr. Engelhard, the chairman, has sent a letter to the four old gold mines concerned reiterating the aims of the new company, and stating that the formal exchange offers will be made in about six weeks' time.

From the point of view of the British-domiciled shareholder this method of exchanging new mines for old (Corner House is to have a participation in any Rand Mines new business, while distributions received will be re-invested expeditiously) may well appear to be a retrograde step. Both here and in the *Mining Journal Quarterly Review of S.A. Gold Shares*, the argument has been repeatedly expressed that capital repayments from dying mines should be made at as early a stage as possible. Thus the commencement of such distributions, first by Van Dyk, of the Union Corporation group, and later by three declining mines of the Gold Fields group, was especially to be welcomed. By the same token, early liquidation is desirable—the examples of such mines as Langlaagte and Knights give the lie to the argument that liquidation means forced sales.

While Corner House Investment may well help remove South African objections to early liquidation, distributions from such an operation will now be channelled into new investments without the shareholder's intervention, instead of being returned tax-free to the investor, for him to do what he will.

There appears to be no danger that an English shareholder who refuses the offer will be left as part of a very small minority shareholding. The exact geographical distribution of shareholders in the four companies concerned is not known, but it seems probable that something like 50 per cent are domiciled in this country. This being so, it might be wise for high taxpayers at least to sit tight, even allowing for the value of the new company's participation rights.

Having said this, it must not be assumed that the notion of a company devoted to using the income from dying mines to satisfy the needs of growing producers is without merit. Indeed, it is only the different taxation position as between this country and the Union which makes the present scheme unattractive to English shareholders. Certainly any scheme is laudable which attempts to keep as much mining risk capital within the industry as possible.

RAYROCK OVERCOMES DIFFICULTIES

In spite of the mining difficulties caused by a complex ore occurrence, Rayrock Mines' performance this year has been extremely satisfactory.

According to Mr. J. C. Byrne, the president, recovery at the mill is now about 97 per cent, while acid consumption is at the comparatively low figure of 38½ lb. of acid per ton of ore treated. Ore grade is currently worth about $66.50 per ton, and costs, including royalties and bank interest, averaged $42.50 during the ten months to August 31. This would indicate a profit for the year to October of about $825,000, with total production somewhere in the region of $2,600,000.

Mining, however, continues to present problems. The complex ore occurrence

necessitates an excessive amount of development work and a large number of workings. Indications are that these conditions will persist for some time.

An extensive development programme is under way, and will be continued at an accelerated rate during the next months.

MOUNT LYELL ACHIEVES OBJECTIVE

In the annual report of Mount Lyell, the chairman, Mr. Walter Bassett, says that the company has attained its objective in treating 2,000,000 tons of ore and 10,000 tons of copper annually. The actual figures in the twelve months to June 30, 1958, were 2,006,788 tons of ore treated for 10,420 tons of copper.

Coupled with an assured base copper price and subsidy under the proposed Copper Bounty Act and assuming continued demand for copper in Australia, Mr. Bassett expects a more stable return from Mount Lyell in the next two years.

The report says drilling within the leases had shown that there was at least 50,000,000 tons of ore averaging approximately one per cent copper below the proposed floor of the West Lyell Cut.

As previously noted, profit for the year was £365,142 after all charges, more than double the previous year's figure. From this, a final dividend of 1s. 3d. per share was declared.

S.A. GOLD RETURNS FOR SEPTEMBER

September's monthly returns from the South African gold mines are notably for the commencement of reef picking at Stilfontein. This has improved recovery—the grade in September was 10.1 dwt., a rise from 9.8 dwt. in the preceding month—and in spite of increased costs overall profit from gold and uranium came out at £513,720, £23,500 up on the preceding month.

In the O.F.S. there was the usual crop of profit records, helped by a rise in the assumed price of gold from 249s. 6d. to 249s. 11d. Among the mines to announce new peaks was F.S. Geduld whose throughput was raised to 74,000 tons, the highest level so far achieved. Costs at this mine showed a useful drop of 11d. per ton. Harmony was another producer where reduced cost levels led to a record surplus. With costs per ton declining by 2s. 1d., overall earnings were a fraction above £300,000. At Welkom, on the other hand, a new profit record was achieved in the face of rising costs. In this case the increased earnings were partly due to the higher gold price and partly to a slight increase in grade.

Elsewhere, Robinson Deep was the victim of more pressure bursts which caused a loss on the month's working, while Loraine's operations were affected by a fire in a stope at No. 2 shaft.

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MR. D. W. THOMAS'S REVIEW

The thirty-eighth annual general meeting of Tekka Limited was held on September 24 in Redruth.

Mr. D. W. Thomas (Chairman), presided.

The Reports and Accounts for the year ended March 31, 1958, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement, circulated with the Report and Accounts, of which the following is an extract:

The Accounts show a profit of £11,432 after payment to the Malayan Government of £12,681 as Royalty on Ore Sales and provision of £4,497 for United Kingdom and Malayan Taxation (less credit for Malayan Tax).

The sum of £3,407 has been written off Capital Expenditure Account, and £8,655 has been transferred to General Reserve. Shareholders will note that £8,656 is noted in the Balance Sheet under the heading "Buffer Stock" as contributions under Tin Control Regulations, 1956. These Contributions have had to be financed by the Company out of earnings.

One dividend of 6d. per share, absorbing a net amount of £5,155, has been paid to Shareholders.

The balance of £30,393 brought forward has been reduced to £24,893, which the Directors propose to carry forward.

During the year 156 tons of tin-ore were recovered from 339,200 cubic yards of ground treated. This output was a little higher than that of the previous year and the volume of ground treated was also a little higher. The recovery per cubic yard was better at 1.03 lb.

Tin Control

In respect of the current financial year Shareholders have been advised that Ore Sales as authorized under the Tin Control Regulations for the Quota Period, April 1, 1958, to June 30, 1958, were 302 piculs (18 tons). Future prospects will, of course, be influenced by the amount of Quota released under the Tin Control Ordinance, 1954, which came into force on December 15, 1957.

The Tin Control and Buffer Stock Regulations, which enforce on Malayan Tin producers the obligations undertaken by the Federation Government as a Signatory to the International Tin Agreement, are having an adverse effect on your Company. By the end of the year under review your Company's compulsory contributions to the Buffer Stock had as before stated amounted to £8,656, and by July 31, 1958, further contributions have increased this figure to approximately £9,885. It must be borne in mind that these contributions are made by deductions from the proceeds of current saleable production, irrespective of whether the Company is making a profit or a loss, and they seriously affect the Company's liquid position in that they represent a considerable sum of money "frozen" until such time as the Buffer Stock is liquidated.

It has been agreed that your Company is an Overseas Trade Corporation dating as from April 6, 1957. For Taxation purposes the Accounts have been treated on this basis.

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

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(Incorporated in the Union of South Africa)

REVIEW BY THE CHAIRMAN, MR. D. A. B. WATSON

(Issued with the Reports and Accounts for the year ended June 30, 1958.)

The directors' report and accounts give details of the affairs of the company for the year ended June 30, 1958.

The net profit for the year amounted to £8,425, compared with £12,191 earned in the previous accounting period, which was for the fifteen months from April 1, 1956, to June 30, 1957. No taxation was payable by the company as it has an assessed loss for tax purposes. The estimated amount of this loss at June 30, 1958, was £201,000.

There was no change in the company's share investments or in its holdings of property, mineral and participation rights and options. No prospecting or drilling operations were carried out during the year under review on any of the areas over which the company holds mineral rights, options or participation rights.

The company retains its interest in the Western Areas Prospect, where the drilling programme was completed during the previous year. The company's share of the expenditure incurred during the year, which expenditure was mainly on acquiring certain mineral and freehold rights and maintaining options, amounted to £8,135, thus increasing its portion of the total expenditure from £189,500 at June 30, 1957, to £197,635 at June 30, 1958.

In the Chairman's Statement, issued prior to the last annual general meeting, members were informed of results obtained in the prospecting work which had been done at the Western Areas Prospect as set out in the information which had been published regarding it by Johannesburg Consolidated Investment Company Limited, under whose control the Prospect falls. No further information is available.

The aggregate market value of the company's quoted share investments amounted to £256,920 at June 30, 1958, compared with their book value of £1,106,422. The difference between these two figures is accounted for mainly by the decline in the market price of the company's shareholdings in Freddies Consolidated Mines Limited.

The net cash funds of the company amounted to £136,224 at June 30, 1958. These funds are being left on deposit with various institutions until such time as more suitable outlets can be found for them.

In conclusion, I would like to place on record the Board's appreciation of the excellent services rendered during the year by the technical and secretarial staffs at the Head Office.

(The Annual General Meeting of Members will be held in the Board Room, Consolidated Building, corner of Fox and Harrison Streets, Johannesburg, on Thursday, October 23, 1958, at 2.30 p.m.)

WESTERN MINING CORPORATION

The annual general meeting of Western Mining Corporation Limited was held on September 17 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the Chairman), presided and, in the course of his speech, said:

(All figures quoted are in Australian currency.)

Net profit for the year was £259,970 compared with £242,059 last year. Dividend income from Central Norseman Gold Corporation No Liability and from Gold Mines of Kalgoorlie (Aust.) Limited was £235,275, the same as last year. The Company has maintained a steady dividend programme for the year, paying dividends Nos. 20 and 21, each of 6d. per fully paid share. The dividends were paid on August 9, 1957, and February 26, 1958, respectively. After the close of the financial year a further dividend No. 22 of 6d. per share, was made payable on August 8, 1958.

Last year reference was made to an offer by the Company to purchase the shares of Gold Mines of Australia Limited held by others than Western Mining Corporation. At the time of the last General Meeting more than 90% of the shareholders concerned had accepted the offer and it was proposed to acquire compulsorily the remaining shares, which has now been done. A total of 62,900 Western Mining Corporation shares have been issued to the previous holders of Gold Mines of Australia shares. Gold Mines of Australia is now a wholly owned subsidiary of Western Mining Corporation.

In Western Australia a reservation of 6,250 square miles in the Darling Ranges was granted to the Company to prospect for bauxite. Preliminary samples have shown commercial grades of bauxite in certain areas. A Laboratory has been erected at Kalamunda and has begun chemical analyses of the field samples. These analyses are complicated and, in view of the large number required, it was considered essential to establish our own laboratory. Arrangements have been made under which a new Company, Western Aluminium No Liability, will undertake the preliminary prospecting of the bauxite deposits. The prospecting of the deposits, which cover a great area, will take a considerable time to complete.

The Champagne Syndicate No Liability, a wholly owned subsidiary of Western Mining Corporation, has been granted a coal prospecting right of 625 square miles including the Wilga Basin. This title has been obtained as part of the development of the bauxite project.

In the Tarraji River area, approximately 60 miles north of Derby in Northwest Western Australia, the Company has been granted a right to prospect for minerals over an area of approximately 2,000 square miles. It has been previously reported that significant copper bearing quartz outcrops occur in the area. The quartz outcrops project above the level of an extensive alluvial plain.

The Western Australian group of companies treated 1,233,724 tons of ore during the year for a recovery of 315,212 ounces of fine gold in bullion and concentrates.

The operations of the various companies have been reviewed in the Annual Reports and at their respective meetings (the Chairman then referred to the principal features).

The report and accounts were adopted.

GOLD MINES OF KALGOORLIE (AUST.)

The annual general meeting of Gold Mines of Kalgoorlie (Aust.) Ltd., was held on September 15 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the Chairman), presided and, in the course of his speech, said:

(All figures are quoted in Australian currency.)

Net profit shown by the accounts amounted to £309,477 compared with £322,033 in the previous year. Included in the net profit is an amount of £351,751 for Gold Subsidy for the year 1957-58 and £10,847 additional subsidy for the year 1956-57.

One dividend of 9d. per share, paid on November 1, 1957, and absorbing £150,948, was declared during the year. Shareholders should appreciate that a relatively high level of capital expenditure has to be financed annually out of profits to enable our deep mines to be developed and ore output and reserves maintained at satisfactory levels, added to this year by additional work occasioned by the collapse of old workings. Your Board has found it necessary to consider dividends yearly in September/October and a statement was issued to this effect on February 4, 1958. Gold subsidy is calculated annually on a subsidy financial year ending June 30 and the amount receivable is not finalized until about October.

Arrangements were completed to buy out the interest held by North Kalgurli (1912) Limited in the Kalgurli Ore Treatment Company Limited. The latter company is now a wholly owned subsidiary of Gold Mines of Kalgoorlie (Aust.) Limited and secures to Gold Mines of Kalgoorlie complete control of the plant, the crushing sections of which will be used for ore from the Western leases for some time to come. The United Kingdom Treasury has approved the transfer of control of this English incorporated company from England to Australia.

The mill averaged 40,487 tons per four weekly period and treated a total of 526,328 tons for the year. From the ore mined 141,044 ounces of fine gold were recovered, including 894 ounces of gold in the concentrates produced; from the clean up of shut down mills an additional 999 ounces were obtained. The average head grade for the year was 5.90 dwts. per ton and the residue .54 dwts., equivalent to a recovery of 91%.

Costs rose by 7.7/- to 83.4/- per ton for the year.

Ore Reserves

Ore reserves at March 18, 1958, were estimated to be 1,338,000 tons averaging 5.8 dwts. per ton compared with 1,467,000 tons averaging 5.8 dwts. at March 19, 1957.

The Australia East opencut has reached a stage where the end of this operation is in sight. There was a reduction of ore reserves in the area of 24,000 tons and it seems improbable that important extensions will be found. The remaining decline in ore reserves is due to a conservative re-estimate of some blocks as the result of experience gained from our effort to control the grade in mining operations.

During the financial year, of 29,439 feet of development 26% was in ore which assayed 11.0 dwts. over 67 inches width. Since the end of the year, to August 5, 11,652 feet of development has been done, of which 21% was in ore averaging 11.3 dwts. over 68 inches.

The development results quoted are the average of all development over 4 dwts. per ton. Mining involves stoping outside these limits and results in the grade of ore to the mill being substantially lower than the average of development. The ore reserve estimates take this into account and indicate the grade expected to be mined in the near future. The development grade of last year, 11 dwts. per ton from the Kalgoorlie leases and maintained since the close of the financial year, is very satisfactory.

The report and accounts were adopted.

KALGOORLIE SOUTHERN GOLD MINES

The annual general meeting of Kalgoorlie Southern Gold Mines No Liability was held on September 16 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the Chairman), presided and, in the course of his speech, said:

(All figures are quoted in Australian currency.)

Development expenditure for the year totalled £16,452, most of which was spent on diamond drilling and geological investigation. After transferring all expenditure to the Development Account this Account stood in the balance sheet at £184,553. At March 31, 1958, net current assets stood at £32,132.

In the annual report it was stated that the recent geophysical surveys, supplemented by shallow drilling, had indicated a pitch reversal and consequently major changes in the Kalgoorlie structures some 3 miles south of Hole S.E.10. The Cavalier folding is thus a favourable prospect from Hole S.E.7 for some 4 miles to the south.

As has also been stated, a drill of greater range than those made to date is needed for our purposes. A suitable drill has been designed and ordered and is due for delivery next year. When the new machine is available, it is proposed to drill a deeper hole under S.E.7 or in its vicinity. This would give a deeper intersection of the western quartz dolerite (already tested by S.E.7) and would go on to test the eastern and, it is believed, more favourable side of the Cavalier position, which was not covered by S.E.7. The new hole would be of a length of 7,000 to 8,000 feet and would be laid out to penetrate, in its deeper portions, 1,000 to 1,500 feet vertically below the deepest position reached by S.E.7. The extension southwards of the geophysical (gravity) survey has indicated disturbed structural conditions in an area some two miles south of S.E.10. This area may be worth testing as an ore prospect apart from the deep prospect, but further study is needed to assess its possibilities.

The report and accounts were adopted.

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Publications Received

An entirely new section has been included in the *Mechanical World Year Book* for 1958, published by Emmott and Co. Ltd. It deals with the diecasting process and its advantages in present-day production. The information on steam turbines has been specially revised for this volume, and new material has been added to the section on gas turbines. This is the 71st year of publication of this useful reference book, which is sold at 4s. 6d.

*

The Statistical Register of Western Australia for 1954-1955, published by the Western Australian Government, has been compiled from official records by R. J. Little, government statistician, and C. R. Muirson, deputy statistician. The volume is divided into thirteen different sections, concluding with a statistical view of the progress of Western Australia. Each section has its own separate index, arranged under various sub-headings, for quick and easy reference and a map showing the revised Statistical Divisions operative from January 1, 1954, appears in Part V of the Statistical Register.

*

A *Bibliography of Nickel* has been issued by the U.S. Department of the Interior as Geological Survey Bulletin 1019-K. Obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price 25 cents.

*

The Aluminium Development Association has announced the following publications.

The List of Publications has now been amplified by a new section named "The Symposium Series", consisting of six volumes containing papers and discussions on various aspects of aluminium practice and use, most of which arise from events sponsored and organized by the A.D.A. The last volume to be published is that dealing with the Symposium on Aluminium and its Alloys in Electrical Engineering (A.D.A. Symposium, May, 1957), and to this will be added in the next edition the Proceedings of the Symposium on "Aluminium in Packaging" held this June—a volume that will not be available, however, until later in the year. The list shows twenty-three published Information Bulletins, eleven Applications Brochures; thirty-four Research Reports and seventy-two Reprints including certain titles in short supply and now available only on loan.

The Directory of Members, showing the names and addresses of the member companies of the Association, together with corresponding details of administrative and sales offices, also comprises a guide to the products available, which are indexed in such a way as to give ready reference to those companies which provide them.

The List of Films, Film Strips and Wall Charts, in which nearly sixty sound films (16 mm.) available on loan are classified under Production, Working Operations, Joining and Applications, has been preserved in this edition. Particulars are also given of 35 mm. film strips.

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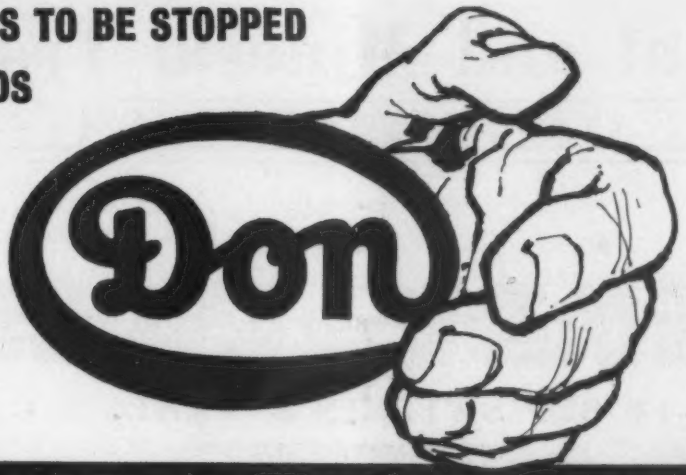

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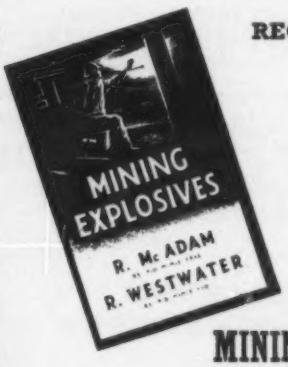

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